Semester Package

ENVIRONMENT AND BIO-RESOURCES MANAGEMENT

University of Natural Resources and Life Sciences, Vienna

Bachelor Courses - Winter Term

Course	Course Number	ECTS	Prerequisite
Organisational behaviour	733104	3	Some knowledge about general processes in organisations is desirable (e.g. based on your work experience).
Scientific working and writing	112101	2	-
Botany (UBRM)	831123	3	-
Conservation biology (UBRM)	834101	2	-
Economics of global commons and climate change	733119	3	-
Specialised field trip UBRM - Rural water management	815112	1	Recommended after the 3rd semester

Bachelor Courses - Summer Term

Course	Course Number	ECTS	Prerequisite
Getting Started in Programming for KTWW	875117	4	spread sheet calculation, basic knowledge in core areas of KTWW: mechanics, statics, hydraulics, statistics, geotechnics
General hydrobiology - exercises	812101	2	-
Corporate sustainability	733119	3	Basic knowledge of the role of organisations in society (e.g. the differences with government and civil society); Knowledge about the major sustainability challenges in western societies.
Hydrobiology	812109	2	-
Atmospheric pollution and climate change	814101	3	Basic math and physics are helpful

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Bachelor Courses - Summer Term

Course	Course Number	ECTS	Prerequisite
Scientific computing	731139	3	pre-knowledge in any programming language will facilitate the successful completion of the class.
The garage	790132	6	interest in innovation, entrepreneurship and not be afraid of economics.
Environmental and energy policy in the EU	732117	3	The course is open for all with an interest in interdisciplinary discussion with a social science focus.
VS Social ecology: Sustainability of society-nature interactions	737114	6	Basic knowledge in sustainable resource use; interest in interdisciplinary sustainability studies
Air pollution control	893127	3	+ General Chemistry + Process engineering (e.g. Prozesstechnik I + II) + Environmental science and engineering + Atmospheric pollution and climate change

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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisite
Innovation processes in the forest-based bioeconomy	735344	2	Familiarity with good practice in methods of scientific work is strongly recommended
Climate and resource policy	737302	3	Basic knowledge in interdisciplinary sustainability studies and sustainable resource use
Game theory in environmental and natural resource management	731335	3	-
Computer simulation in energy and resource economics	731369	3	-
Managerial economics	731348	3	Basic Microeconomics
Applied mathematical programming in natural resource management	731351	3	-
Climate change scenarios and regional impact	814305	3	This lecture is obligatory for UBRM master students of the module climate. The meteorological/climatological know how of an UBRM Bachelor is the precondition
Seminar in global change and ecosystems	833319	2	Basics in ecology
Water resources planning and management	816338	3	-
Risk management and vulnerability assessment	871360	3	A passed Bachelor is recommended.
Water legislation	812348	2	-
Ecological river landscape management	812349	2	-
Human impacts in riverine landscapes	812347	2	Basic knowledge in hydrobiology & fish ecology
Environmental bioprocess engineering	790306	4	Basic knowledge of chemistry, biochemistry, microbiology and process engineering
Risk assessment in the aquatic environment	811334	3	Basic knowledge on chemistry
Soil protection	911301	3	Fundamentals of soil science (at least bachelor level, ideally the level after passing the exam of 911.014 - Soil Science Refresher)
Soil physics and chemistry	911300	3	Knowledge of fundamental physics, chemistry and soil science is required (at least at bachelor level).

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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisite
Applied measurement and control systems	893308	3	Basic knowledge on measurement and control technology (VO MRT I).
Fluidization engineering	893329	4	Master-course: Bachelor-level knowledge in physics and engineering is expected The students know the main characteristics of fluidized systems and know about the relevant differences to fixed and moving bed systems. The students know the basic conditions for achieving a fluidized state. The students know the particle-Reynolds number and the Archimedes number. The students are able to define the gross dimensions of a fluidized bed for given fluid and solid parameters
Practical course in energy engineering	893306	3	Basic knowledge in energy technologies, but also in the fields of mechanics, fluid mechanics, thermodynamics and measurement engineering. Following LVA's are recommended for the practical course: 1) Process engineering I and II 2) Energy and environment engineering 3) Energy engineering
Conservation biogeography and genetics	834305	3	-
Applied system dynamics modelling in transport	856323	3	Attendance of course 856322 "System analysis, strategic planning and policy modelling with system dynamics" or equal knowledge in system analysis and modelling, basic knowledge in transport planning, e.g. course 856320 „Verkehr und Umwelt“, are strongly recommended.
Environmental statistics	851311	3	Advanced lecture in applied statistics. A sound basis in statistical methods (introduction to statistics) and computer basics is required!
Statistics of extreme events and geostatistics	851320	3	Advanced applied statistics. For participants not familiar with geostatistics we recommend attending course "851311 Environmental Statistics" before.
Computer simulation in energy and resource economics	731369	3	-

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Master Courses - Winter Term

Course	Course Number	ECTS	Prerequisite
Applied mathematical programming in natural resource management	731351	3	-
Uncertainties in hydrological and ecosystem modelling	816355	3	Background in statistics, calculus and environmental systems. Starting in week 3, it is expected that students have developed via self-learning some introductory knowledge in R- or Python-programming. The course is designed for students at the M.Sc. or PhD level with interest in ecosystem modelling.
Field course soil ecology	911321	3	-
Soils and food security	911342	2	-
Soil physics and chemistry	911300	3	Knowledge of fundamental physics, chemistry and soil science is required (at least at bachelor level).
Soil chemistry laboratory	911309	3	-
Soil ecology	833301	3	-
Role of soils in nature conservation and wildlife management	911322	1,5	-
Soils and global change	911327	4	-
Social ecology and sustainable development	737306	3	Basic knowledge in interdisciplinary sustainability studies and sustainable resource use
Land use and global change: Socio-ecological interactions	737314	3	Basic knowledge in interdisciplinary sustainability studies and sustainable resource use

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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisite
Market-oriented innovation processes	735341	3	-
System analysis, strategic planning and policy modelling with system dynamics	856322	3	-
Institutional innovation and sustainability transformation	731393	3	Basic knowledge of the sustainability discourse, political sciences, law, sociology, regional development
Growth, development, trade and environment	731330	3	Basic analysis and microeconomics
Ecosystem dynamics and their effect on greenhouse gases	911331	3	-
Possible impacts of climate change on water resources	816342	3	-
Energy engineering	893360	3	Physics including thermodynamics (e.g. VO 892.104 + VO 893.103 or VO 892.105 + VO 893.112)
Data mining and data management in aquatic ecology	812379	2	Basics in statistics. Knowledge of MS excel and/or other statistic software.
Application of GIS in hydrology and water management	816347	3	Basic knowledge of hydrology (approximately at the level of courses 816100 and/or 816101)
Global waste management II	813301	3	-
Planning and assessment of waste management systems	813303	3	The content of the lecture „Life cycle management“ (813.304) or similar knowledge to Life cycle Assessment, Impact categories, Assessment Methodologies.
Life cycle management	813304	2	basic knowledge of waste management and basics in natural sciences
Ecosystem dynamics and their effect on greenhouse gases	911331	3	-
Wind energy: Risks and design options	818308	3	-
Rural development	731347	3	-

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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisite
Sustainable spatial development	855327	5	Course for master students or phD-students! Knowledge of the courses "Spatial Planning" (Lecture) and "Projects in Spatial Planning" (Project work) is very recommended.
Facilitating change for sustainable development	934305	3	-
Participatory methods in development research and practice	934317	3	Advantage: 169.401 Development Innovation, 169.304 Livelihood system dynamics in rural development, 169.305 Facilitating change for sustainable development
Biodiversity and land use change: A socio-ecological perspective	737326	3	Basic knowledge in interdisciplinary sustainability studies, sustainable resource use and biodiversity
Green logistics	734330	3	Basic knowledge in business economics and logistics
Traffic and transport planning	856306	3	Basic knowledge of research methods, literature and literature sources.
Valuation methods for natural resources	731328	3	introductory course in microeconomics and statistics or econometrics, and differential and integral calculus
Biogeochemistry of soils	911341	3	Fundamental knowledge of the main features of soil composition (phases and their constituents such as elemental composition, main compounds and mineralogy), soil (forming) processes, soil classification (international system - World Reference Base), basics of soil
Soil protection	911301	3	Fundamentals of soil science (at least bachelor level, ideally the level after passing the exam of 911.014 - Soil Science Refresher)
Soil microbiology course	911333	4	-
Soil indicators	911304	3	Basic soil knowledge.
Environmental and climate justice	737316	3	-

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Master Courses - Summer Term

Course	Course Number	ECTS	Prerequisite
Guided reading: Long-term socio-ecological research and environmental history	737320	3	-

Master Courses - Winter or Summer Term

Course	Course Number	ECTS	Prerequisite
Statistics with R	851309	2	-

How to look for courses:

boku.ac.at/int-in-boku-howtolookforcourses-en.html

For more information please contact

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Updated Mar 2021